Omnitron iConverter XM5 Aggregation Demarcation Device User Guide

Contents

Omnitron iConverter XM5 Aggregation Demarcation Device

Specifications:

- Product Name: XM5 Aggregation Demarcation Device
- Manufacturer: Omnitron Systems Technology, Inc.
- Ports: Two 10G SFP+ or XFP ports, twelve 1G SFP ports, two 10/100/1000 RJ-45 ports

- Supported Transceivers: 10G Ethernet fiber transceivers, 1000BASE-X fiber transceivers, 100BASE-FX, 1000BASE-X fiber transceivers, 10/100/1000BASE-T copper transceivers

Product Usage Instructions

Installation Procedure:

1. **AC/DC Power Installation:** Follow the provided instructions for connecting the power supply to the device.
2. **Installing SFP/SFP+/XFP Transceivers and Connecting the Cables:** Insert the transceivers into their respective ports and connect the cables accordingly.
3. **Configure Module via Command Line Interface:** Access the device's command line interface and configure the settings as needed.
4. **Verify Operation:** Ensure that the device is functioning correctly by testing its connectivity and performance.

Frequently Asked Questions (FAQ):

- Q: How do I register the product to access the complete User Manual?
  A: To access the complete User Manual and other information on XM5 models, visit Omnitron's registration page and follow the registration process for the product.
- Q: What types of transceivers are supported by the XM5 Aggregation Demarcation Device?
  A: The XM5 supports various transceivers including 10G Ethernet fiber transceivers, 1000BASE-X fiber transceivers, 100BASE-FX, and 10/100/1000BASE-T copper transceivers. Refer to the datasheet for available models and options.

Warranty

This network product and the included AC/DC power adapter are warranted to the original purchaser (Buyer) against defects in material and workmanship for two (2) years from the date of shipment. The warranty for the network product can be extended to three (3) years by registering the product at www.omnitron-systems.com/support within ninety (90) days from the date of shipment. During the warranty period, Omnitron will, at its option, repair or replace a product that is proven to be defective with the same product or with a product with at least the same functionality. For warranty service, the product must be sent to an Omnitron designated facility, at Buyer's expense. Omnitron will pay the shipping charge to return the product to the Buyer's designated US address using Omnitron's standard shipping method.

Limitation of Warranty
The foregoing warranty shall not apply to product malfunctions resulting from improper or inadequate use and/or maintenance of the equipment by Buyer, Buyer-supplied equipment, Buyer-supplied interfacing, unauthorized modifications or tampering with equipment (including removal of equipment cover by personnel not specifically

authorized and certified by Omnitron), or misuse, or operating outside the environmental specification of the product (including but not limited to voltage, ambient temperature, radiation, unusual dust, etc.), or improper site preparation or maintenance. No other warranty is expressed or implied. Omnitron specifically disclaims the implied warranties of merchantability and fitness for any particular purpose. The remedies provided herein are the Buyer's sole and exclusive remedies. Omnitron shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any legal theory.

Environmental Notices

The equipment covered by this manual must be disposed of or recycled under the Waste Electrical and Electronic Equipment Directive (WEEE Directive) of the European Community Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) which, together with the RoHS Directive 2015/863/EU, for electrical and electronic equipment sold in the EU after July 2019. Such disposal must follow national legislation for IT and Telecommunication equipment under the WEEE directive: (a) Do not dispose of waste equipment with unsorted municipal and household waste. (b) Collect equipment waste separately. (c) Return equipment using the collection method agreed with Omnitron.

The equipment is marked with the WEEE symbol to indicate that it must be collected separately from other types of waste. In the case of small items, the symbol may be printed only on the packaging or in the user manual. If you have questions regarding the correct disposal of equipment go to **www.omniton-systems.com/support** or e-mail to Omnitron at **intlinfo@omnitron-systems.com**.

Safety Warnings and Cautions

- ATTENTION: Observe precautions for handling electrostatic discharge-sensitive devices.
- WARNING: Potential damage to equipment and personal injury.
- WARNING: Risk of electrical shock.

PRODUCT OVERVIEW

- This document describes the basic installation and configuration of the XM5 Aggregation Demarcation Device.
- The iConverter XM5 is an intelligent Aggregation Demarcation Device, that delivers advanced Carrier Ethernet services and provides demarcation at the edges of a network.
- The XM5 supports two 10G SFP+ or XFP ports, twelve 1G SFP ports and two 10/100/1000 RJ-45 ports. The two SFP+ or XFP ports support 10G Ethernet fiber transceivers up to power level 4 and/or 1000BASE-X fiber transceivers. The twelve 1G SFP ports support 100BASE-FX, 1000BASE-X fiber transceivers and/or 10/100/1000BASE-T copper transceivers. See the datasheet for available models and options.

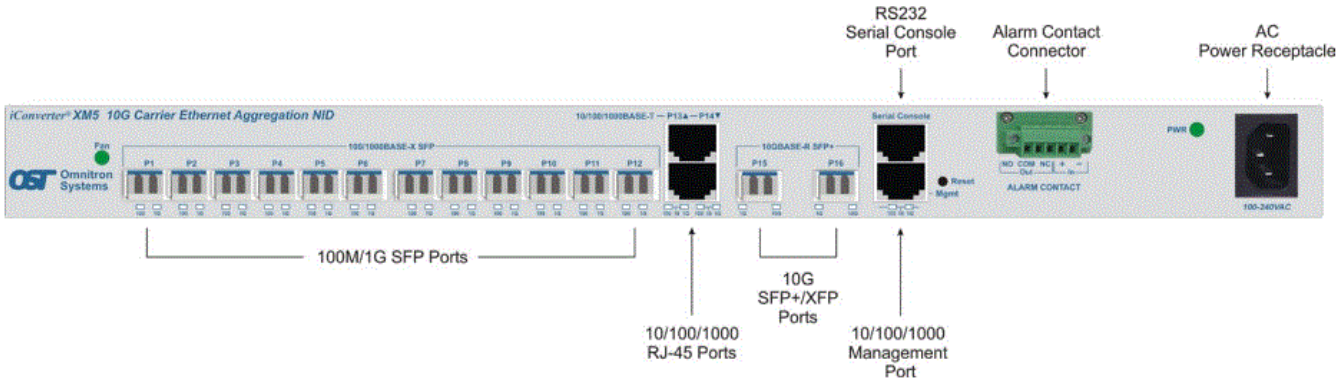
- For more information including the complete User Manual on the XM5 models, access Omnitron's registration page and register the product.

INSTALLATION PROCEDURE

1. AC/DC Power Installation
2. Installing SFP/SFP+/XFP Transceivers and Connecting the Cables
3. Configure Module via Command Line Interface
4. Verify Operation

AC/DC POWER INSTALLATION
AC Power

- A power source should be available within 5 ft. of the XM5 and installed per the National Electrical Code ANSI/NFPA-70.
- The XM5 requires an 80-264VAC, 0.8 Amps, 50-60Hz power outlet. Appropriate overloading protection should be provided on the AC power source outlets utilized
- The standard operating temperature of this equipment is 0 to 50 degrees C. If installed in a closed or multi-module rack assembly, the operating ambient temperature of the rack must not exceed the maximum rated 50 degrees C. See specifications on page 8 for wide and extended temperature ranges.
- Installation of the equipment should be such that the airflow in the front, back and side vents of the XM5 are not compromised or restricted.
- Never use this equipment to carry any weight except its own. Never use it as a shelf to support the weight of other equipment.
- Attach the AC power cord to the power receptacle on the front of the XM5. The XM5 will illuminate the power LED.



Front View with AC Power Connector

WARNING
NEVER ATTEMPT TO OPEN THE CHASSIS OR SERVICE THE POWER SUPPLYORFAN MODULE. OPENING THE CHASSIS MAY CAUSE SERIOUS INJURY OR DEATH. THERE ARE NO USER-REPLACEABLE OR SERVICEABLE PARTS IN THIS UNIT.

DC Power
A power source should be available within 5 ft. of the XM5. The over-current protection for connection with centralized DC shall be provided in the building installation and shall be a UL-listed circuit breaker rated 20 Amps,

and installed per the National Electrical Code, ANSI/NFPA-70.
The XM5 requires +/- 20 to 60VDC (48VDC @ 1.2 Amp max rated power). Appropriate overloading protection should be provided on the DC power source outlets utilized.

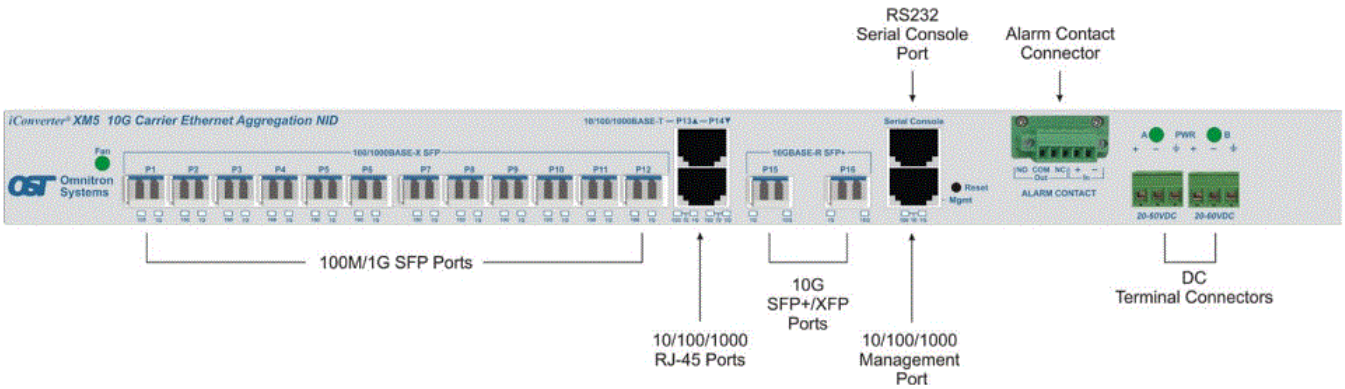
WARNING:
Only a DC power source that complies with safety extra low voltage (SELV) requirements can be connected to the DC-input power supply.

WARNING REGARDING EARTHING GROUND:

- This equipment shall be connected to the DC supply system earthing electrode conductor or to a bonding jumper from an earthing terminal bar or bus to which the DC supply system earthing electrode is connected.
- This equipment shall be located in the same immediate area (such as adjacent cabinets) as any other equipment that has a connection between the earthed conductor of the same DC supply circuit and the earthing conductor, and also the point of earthing of the DC system. The DC system shall not be earthed elsewhere.
- The DC supply source is to be located within the same premises as this equipment.
- There shall be no switching or disconnecting devices in the earthed circuit conductor between the DC source and the earthing electrode conductor.

Locate the DC circuit breaker of the external power source, and switch the circuit breaker to the OFF position. Prepare a power cable using a three-conductor insulated wire (not supplied) with a 14 AWG gauge minimum. Cut the power cable to the length required. Strip approximately 3/8 of an inch of insulation from the power cable wires. Connect the power cables to the terminal by fastening the stripped ends to the DC power connector.
WARNING: Note the wire colors used in making the positive, negative, and ground connections. Use the same color assignment for the connection at the circuit breaker.

Connect the power wires to the circuit breaker and switch the circuit breaker ON. The Power LED will indicate the presence of power. Depending on the model number of the XM5, a second power source is available. Use the same power supply installation procedure above for the second power supply. Installation of the equipment should be such that the air flow in the front, back, and side vents of the XM5 are not compromised or restricted.



Front View with Dual DC Terminal Connector

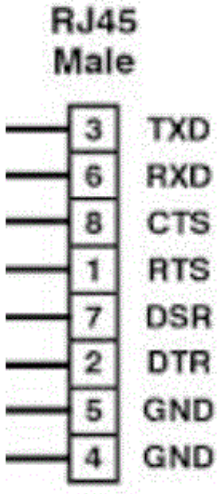
WARNING
NEVER ATTEMPT TO OPEN THE CHASSIS OR SERVICE THE POWER SUPPLYORFAN MODULE. OPENING THE CHASSIS MAY CAUSE SERIOUS INJURY OR DEATH. THERE ARE NO USER-REPLACEABLE OR SERVICEABLE PARTS IN THIS UNIT.

INSTALLING SFP/SFP+/XFP TRANSCEIVERS AND CONNECTING THE CABLES

- a. Insert the fiber or copper transceivers into the 10G/1G receptacles on the module. NOTE: The release latch of the transceiver must be in the closed (up) position before insertion.
  The XM5 can detect the speed and automatically configure the port to match the speed of approved transceivers. Some fiber transceivers will need to be configured using the port CLI commands to configure the speed of the port to match the speed of the installed SFP transceiver.
- b. Connect the appropriate multimode or single-mode fiber cable to the fiber port of the installed module. When using dual fiber, it is important to ensure that the transmit (TX) is attached to the receive side of the device at the other end and the receive (RX) is attached to the transmit side. Single-fiber (SF) transceivers operate in pairs. The TX wavelength must match the RX wavelength at the other end and the RX wavelength must match the TX wavelength at the other end.
- c. For models with fixed RJ-45 ports or copper SFP transceivers, connect the RJ-45 port via a Category 5 or better Ethernet cable to a 10BASE-T, 100BASE-TX or 1000BASE-T Ethernet device (depending on the configuration of the port).

CONFIGURE MODULE via COMMAND LINE INTERFACE

- To configure the XM5 using the serial port, attach a serial RS-232-equipped computer with terminal emulation software such as Procomm or Putty to the serial console port on the XM5. The Serial Console Port (DCE) is a RJ-45 connector (per EIA/TIA-561).
- The serial console port is located on the front of the XM5. Attach the ends of the serial adapter cable to the serial port of the PC and the RJ-45 connector to the XM5. The port is a standard RS-232 asynchronous serial interface.
- The serial adapter cable pin-outs are illustrated below.



Serial Adapter Cable Pin Outs

Serial Console Port Settings
Start the terminal emulation program and select the correct COM Port. Set the serial port to the following:

- Bits Per Second 115,200
- Stop Bits 1
- Data Bits 8
- Parity NONE

- Hardware Flow Control NONE

VERIFY OPERATION

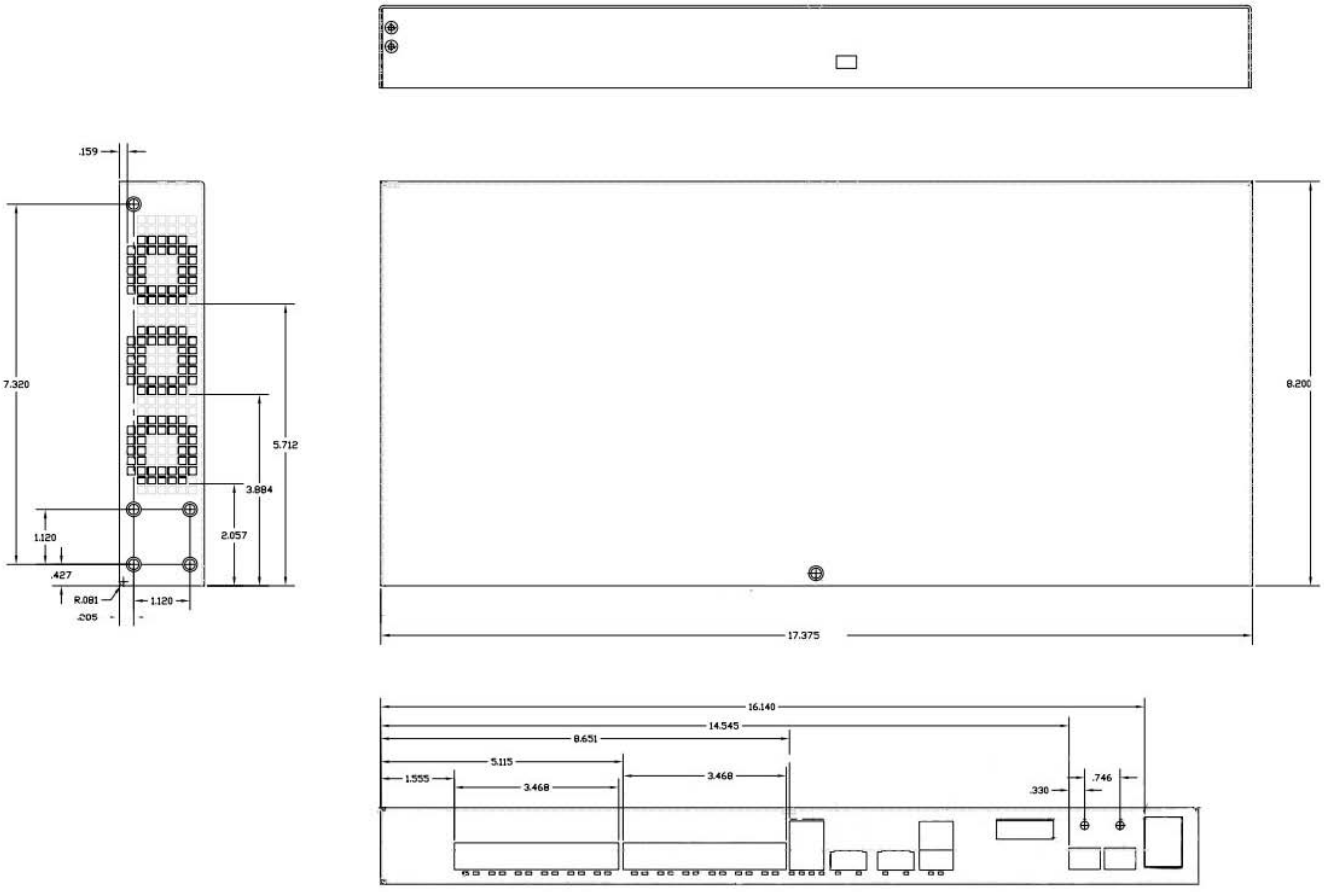
- Verify the module is operational by viewing the status of the LED indicators. The table on the next page describes each LED indicator.
- The Power LED(s) indicate the module is receiving power from the external power source.
- The port LEDs indicate the state of connection between link partners. A blinking port activity LED indicates the presence of data.

LED Indicators

LED Function “Legend”	Color	OFF State	ON/Blinking State
Power “Pwr A”	Green/ Yellow	No power	Solid Green: Module has power Blinking Yello w (10Hz): Fan Alarm
Power “Pwr B” (Dual power models only)	Green/ Yellow	No Power	Solid Green: Module has power Blinking Yello w (10Hz): Fan Alarm
P1 – P12 Link Activity “100”	Green	Port not linked at 100M	Solid Green: Port linked at 100M Blinking Gre en (10Hz): Data activity Blinking Green (1Hz): Far-end fault detected b ut no link
P1 – P12 Link Activity “1G”	Green	Port not linked at 1G	Solid Green: Port linked at 1G Blinking Green (10Hz): Data activity Blinking Green (1Hz): Auto-negotiation detect ed but no link
P13 and P14 Link Activity “ 100”	Green	Port not linked at 100M	Solid Green: Port linked at 100M Blinking Gre en (10Hz): Data activity Blinking Green (1Hz): Far-end fault detected b ut no link
P13 and P14 Link Activity “ 1G”	Green	Port not linked at 1G	Solid Green: Port linked at 1G Blinking Green (10Hz): Data activity Blinking Green (1Hz): Auto-negotiation detect ed but no link
P13 and P14 Link Activity “ 100” and “1G”	Green	Port not linked at 10M	Solid Green: Port linked at 10M Blinking Gree n (10Hz): Data activity
P15 and P16 Link Activity “ 10G”	Green	Port not linked	Solid Green: Port linked at 10G Blinking Gree n (10Hz): Data activity Blinking Green (1Hz): Energy detected but no link

P15 and P16 Link/Act “1G”	Green	Port not linked	Solid Green: Port linked at 1G Blinking Green (10Hz): Data activity Blinking Green (1Hz): Energy detected but no link
Mgmt “100”	Green	Port not linked at 100M	Solid Green: Port linked at 100M Blinking Gre en (10Hz): Data activity Blinking Green (1Hz): Far-end fault detected b ut no link
Mgmt “1G”	Green	Port not linked at 1G	Solid Green: Port linked at 1G Blinking Green (10Hz): Data activity Blinking Green (1Hz): Auto-negotiation detect ed but no link
Mgmt “100” and “1G”	Green	Port not linked at 10M	Solid Green: Port linked at 10M Blinking Gree n (10Hz): Data activity

Mechanical



Specifications

Standard Compliances	IEEE 802.1Q, 802.1ad, 802.1AX, 802.1p, 802.3, 802.3ad, 802.3ah, 802.1ag, 1588v2 RFC 2819 (RMON), 2863 (IF-MIB), 2131 (DHCP), 2544 ITU-T G.8031, G.8032, G.8262, Y.1731, Y.1564 MEF 9, 14, 21, 31, Carrier Ethernet 2.0 **2**	
Management	Telnet, SNMPv1, SNMPv2c, SNMPv3, SSH, Serial Console	
Regulatory Compliances	Safety: EMI: ACT:	UL, CE, NEBS Level 3, UKCA FCC Class A TAA, BAA, NDAA
Environmental	RoHS, WEEE, REACH	
Frame Size	Up to 10,056 bytes	
Port Types	Copper:	10/100/1000BASE-T (RJ-45)
	Fiber:	100BASE-X (SFP) 1000BASE-X (SFP) 10GBASE-R (SFP+, XFP)
	Serial: (Management)	RS-232 (RJ-45)
	Copper: (Management)	10/100/1000BASE-T (RJ-45)
Cable Types	Copper:	EIA/TIA 568 A/B, Category 5 and higher
	Fiber:	Multimode: 50/125um, 62.5/125um Single-mode: 9/125um
	Serial: (Management)	EIA/TIA 568 A/B, Category 3 and higher
	Copper: (Management)	EIA/TIA 568 A/B, Category 5 and higher
AC Power Requirements	IEC 320 C14:	80-264VAC~ 50-60Hz 0.8A @ 110VAC
DC Power Requirements	3-Pin Terminal:	+/-20 to 60VDC 1.2A @ 48VDC (56W Max)
Temperature	Commercial: Wide: Extended: Storage:	0 to 50° C -40 to 60° C -40 to 75° C -40 to 80° C
Dimensions W x D x H	17.15” x 9.0” x 1.70” (435.61mm x 228.6mm x 43.18mm)	

Weight	1 power supply: 2 power supplies:	7.5 lbs (3.41 kg) 9.0 lbs (4.1 kg)
Humidity	5% to 95% (non-condensing)	
Altitude	-100m to 4,000m (operational)	
Warranty	3-year warranty	

Customer Service Information

If you encounter problems while installing this product, contact Omnitron Technical Support:
Phone: (949) 250-6510
Fax: (949) 250-6514
Address: Omnitron Systems Technology, Inc.
38 Tesla
Irvine, CA 92618, USA
Email: **support@omnitron-systems.com**
URL: **www.omnitron-systems.com**

Documents / Resources

	**Omnitron iConverter XM5 Aggregation Demarcation Device** [pdf] User Guide iConverter XM5 Aggregation Demarcation Device, iConverter XM5, Aggregation Demarcation Device, Demarcation Device

References

- **Omnitron Systems | Making Networks Reliable Since 1992**
- **Omnitron Systems | Making Networks Reliable Since 1992**
- **Omnitron 24-7 Technical Support**
- **User Manual**